

DOCUMENT RESUME

ED 228 928

HE 016 097

TITLE Study of the Cost to Borrowers of Participating in the Guaranteed Student Loan Program. Final Report.

INSTITUTION Touche Ross and Co., Washington, D.C.

SPONS AGENCY National Commission on Student Financial Assistance, Washington, DC.

PUB DATE Mar 83

NOTE 90p.; Some tables will not reproduce well due to small print.

PUB TYPE Reports - Evaluative/Feasibility (142)

EDRS PRICE MF01/PC04 Plus Postage.

DESCRIPTORS *Cost Estimates; Economic Factors; Educational Finance; *Federal Programs; Higher Education; Interest (Finance); *Loan Repayment; Models; *Student Costs; Student Financial Aid; *Student Loan Programs

IDENTIFIERS *Guaranteed Student Loan Program; *National Comm on Student Financial Assistance

ABSTRACT

The cost to a typical borrower of participating in the Guaranteed Student Loan (GSL) program was studied, based on the analysis of automated models that calculate total borrower costs under various scenarios. The focus was related to the actual costs of obtaining and repaying a student loan. Conclusions are as follows: (1) student borrowers under the GSL program usually pay in real terms (adjusted for inflation) an effective interest rate of close to zero, or in many cases, less than zero; (2) borrowers who hold loans for longer periods of time before entering repayment are able to realize more of an advantage than borrowers who enter repayment more quickly; (3) the Parent Loans for Undergraduate Students (PLUS) do not have the same advantages for borrowers as do student loans; (4) borrowers who can delay the start of repayment while enjoying the benefits of a federal interest subsidy have a major incentive to borrow; and (5) the real cost to the federal government is higher for student loans than for PLUS loans. In addition to the findings, attention is directed to the research methodology, three scenarios (high, moderate, and low cost institutions); borrower cost model descriptions, description of the GSL program, and a summary of selected literature and a list of sources. (SW)

* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *

ED228928

The opinions expressed do not necessarily reflect the position of the National Commission on Student Financial Assistance.

Final Report

BEST COPY AVAILABLE

The National Commission on Student Financial Assistance

STUDY OF THE COST TO BORROWERS OF PARTICIPATING IN THE GUARANTEED STUDENT LOAN PROGRAM

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

National Commission on Student Financial Assistance

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

This document has been reproduced as received from the person or organization originating it.
Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

Prepared By
Touche Ross & Co. 

March 1983

FINAL REPORT

STUDY OF THE COST TO BORROWERS
OF PARTICIPATING IN THE
GUARANTEED STUDENT LOAN PROGRAM

THE NATIONAL COMMISSION ON STUDENT
FINANCIAL ASSISTANCE

TABLE OF CONTENTS

	<u>Page</u>
EXECUTIVE SUMMARY	
I. APPROACH AND METHODOLOGY	I-1
A. OBJECTIVE	I-1
B. APPROACH AND METHODOLOGY	I-1
II. IDENTIFICATION AND ANALYSIS OF BORROWER COSTS. . .	II-1
A. COST COMPONENTS TO A BORROWER UNDER THE GSL PROGRAM	II-1
B. BORROWER COST MODELS	II-1
C. ANALYSIS OF BORROWER COSTS	II-3
D. ANALYSIS OF FEDERAL COSTS AND LENDER REVENUES	II-5
E. SUMMARY OF MAJOR OBSERVATIONS	II-6
III. DESCRIPTION OF SCENARIOS	III-1
A. SCENARIO ONE - HIGH COST EDUCATIONAL INSTITUTION	III-1
B. SCENARIO TWO - MODERATE COST EDUCATIONAL INSTITUTION	III-1
C. SCENARIO THREE - LOW COST EDUCATIONAL INSTITUTION	III-2
D. SUMMARY OF MAJOR OBSERVATIONS	III-2
APPENDIX A -- SUMMARY OF SELECTED LITERATURE AND LIST OF SOURCES	A-1
APPENDIX B -- DESCRIPTION OF THE GUARANTEED STUDENT LOAN PROGRAM	B-1
APPENDIX C -- BORROWER COST MODEL DESCRIPTIONS . .	C-1

LIST OF EXHIBITS

<u>Number</u>	<u>Title</u>	<u>Page</u>
II-1	PLUS Loan -- Repayment Begins in 30 Days . . .	II-8
II-2	Student Loan -- Repayment Begins in One-and-a-Half Years	II-9
II-3	Student Loan -- Repayment Begins in Five-and-a-Half Years	II-10
II-4	Student Loan -- Repayment Begins in Eight Years.	II-11
II-5	Summary of Borrower Costs.	II-12
II-6	Summary of Federal Subsidies	II-13
II-7	Summary of Lender Revenues	II-14
II-8	Real Value of Lender Revenues.	II-15
II-9	Detailed Federal Costs -- PLUS Loan.	II-16
II-10	Detailed Federal Costs -- Student Loan (Repayment begins in one-and-a-half years)	II-17
II-11	Summary Federal Costs -- Student Loan (Repayment begins in one-and-a-half years).	II-18
II-12	Detailed Federal Costs -- Student Loan (Repayment begins in five-and-a-half years)	II-19
II-13	Summary Federal Costs -- Student Loan (Repayment begins in five-and-a-half years)	II-20
II-14	Detailed Federal Costs -- Student Loan (Repayment begins in eight years).	II-21
II-15	Summary Federal Costs -- Student Loan (Repayment begins in eight years).	II-22
III-1	Scenario One -- Student Loan	III-4
III-2	Scenario One -- PLUS Loan.	III-5

LIST OF EXHIBITS

<u>Number</u>	<u>Title</u>	<u>Page</u>
III-3	Scenario Two.	III-6
III-4	Scenario Three.	III-7
B-1	Payment of Principal and Interest on Student Loans	B-5

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

The objective of this study was to identify the cost to a typical borrower of participating in the Guaranteed Student Loan (GSL) program. Our approach to this study included the development and analysis of several automated models that calculate total borrower costs under various scenarios.

Although we reviewed available literature on the subject of student loan burden, we did not attempt to quantify the actual "burden" placed upon a typical borrower. The focus of this study was related to the actual costs of obtaining and repaying a student loan. Based upon our analysis, we have developed the following observations and conclusions:

1. Student borrowers under the GSL program usually pay in real terms (adjusted for inflation) an effective interest rate of close to zero, or in many cases, less than zero. This occurs because:
 - a. All payment of principal and interest is delayed until after the student leaves school; and
 - b. When repayment begins, the interest rate paid by the borrower is below market rate.

The difference between what the student pays and what the lender demands for the capital is the total federal subsidy (i.e., the in-school interest subsidy and special allowance).

2. Borrowers who hold loans for longer periods of time before entering repayment are able to realize more of an advantage than borrowers who enter repayment more quickly.
3. PLUS loans do not have the same advantages for borrowers as do student loans. This observation is based on the fact that PLUS loans usually enter repayment immediately and, as a result, do not enjoy any benefits from the federal interest subsidy.
4. In the absence of inflation, two student loans for the same amount, with the same interest rate and the same repayment period, require the borrower to pay approximately the same amount in principal and interest, regardless of the length of their respective in-school, grace, and deferment periods.

5. Borrowers who can delay the start of repayment while enjoying the benefits of a federal interest subsidy have a major incentive to borrow.
6. This analysis assumes a relatively low rate of expected inflation in comparison to the average rate over the last several years. At higher rates of inflation the incentive to borrow to finance education is increased given that the interest rate to the borrower under the GSL program is fixed at below market rates (9% for students and 12% for parents) and subsidized by the federal government.
7. The real cost to the federal government is higher for student loans than for PLUS loans. Furthermore, student loans with longer in-school, grace, and deferment (subsidized) periods cost the federal government more than student loans with shorter subsidized periods.
8. The total federal subsidy (i.e., interest subsidy and special allowance) is structured to provide the most benefit to student borrowers:
 - a. Attending high cost institutions (requiring the maximum allowable amount be borrowed);
 - b. Attending four year institutions (as opposed to two year institutions); and
 - c. Acquiring post-graduate educations (with associated deferments).

This occurs because the subsidy is highest when the maximum amount is borrowed and repayment is delayed as long as possible.
9. PLUS loans are a much more costly method of financing post-secondary education than GSL student loans. The costliness of the PLUS loans is a result of the higher interest rate on the PLUS loans and the fact that PLUS loans are ineligible for federal interest subsidy.
10. The in-school subsidy is the critical factor as to whether it is rational to borrow. While in-school subsidies are available, it is to the borrower's advantage to borrow as much as possible, as early as possible.

11. As structured, the GSL program for students presents a paradox in that student borrowers who undertake an extended education:
 - a. Pay less in real terms for the borrowed capital;
 - b. Cost the federal government more in subsidy payments; and yet
 - c. Receive the greatest potential benefit (e.g., higher lifetime earnings) from their education.

I. APPROACH AND METHODOLOGY

I. APPROACH AND METHODOLOGY

A. OBJECTIVE

The objective of the study* was to identify the cost to a typical borrower over the life of a loan under the Guaranteed Student Loan (GSL) program. The study combined the assembly and review of existing knowledge with certain original data collection and analysis activities.

B. APPROACH AND METHODOLOGY

The study encompassed four distinct activities, each of which is described below.

1. Literature Review of Student Loan Burdens

We reviewed previous work done on student loan burdens to identify the approaches taken and the results of these analyses. The sources included:

- Periodicals;
- Books;
- Congressional testimony; and
- Publications of both private and government organizations.

In addition, we performed a keyword search of several automated indexes of education research and dissertations. The results of our literature review are summarized in Appendix A, Summary of Selected Literature and List of Sources.

2. Original Data Collection

We collected program data at the U.S. Department of Education (ED) and several large student loan servicers in order to determine average loan sizes and the average length of the interim and repayment loan periods.

* This study of costs to a typical borrower was done simultaneously with a study of the costs to the federal government of the Guaranteed Student Loan (GSL) program. The study of federal costs was delivered under separate cover to the Commission.

3. Development of Automated Models

We developed three automated models that calculate total borrower costs over the expected life of a student's loan(s). The three models were:

- I. A multiple student loan model without a deferment component;
- II. A multiple student loan model with a deferment component; and
- III. A single PLUS loan model.

The multiple student loan models could be used with either 7% or 9% student loans.

4. Analysis of Borrower Cost Scenarios

We developed several scenarios to reflect variations in educational cost and post-graduation income. We used the automated cost models to calculate total borrower costs under each of these scenarios.

* * * *

The next two sections of this report describe the models and present the results of our analysis. Exhibits are presented at the end of each section.

As noted above, Appendix A contains a literature review. In addition, Appendix C contains the detailed assumptions used in the models.

It should be noted that this report assumes that the reader is familiar with the student and parent portions of the GSL program. Readers who are not that knowledgeable should review Appendix B, Description of the Guaranteed Student Loan Program, before proceeding further.

II. IDENTIFICATION AND ANALYSIS OF BORROWER COSTS

II. IDENTIFICATION AND ANALYSIS OF BORROWER COSTS

A. COST COMPONENTS TO A BORROWER UNDER THE GSL PROGRAM

The borrower will incur a variety of costs during the life of his/her student loan. These costs include:

- The loan origination fee;
- The insurance premium; and
- Interest.

The borrower is also expected to totally repay the principal amount borrowed within 15 years of the date of disbursement.*

The magnitude of the borrower's costs will vary depending on:

- The amount borrowed (net of the loan origination fee and insurance premium);
- The interest rate on the loan;
- The length of the in-school and grace periods; and
- The length of the repayment period.

B. BORROWER COST MODELS

As described above, we developed three models to address the issue of borrower cost. Each model addressed a different "typical" borrower and determined the cost to that borrower over the life of one or more loans given various loan parameters (e.g., principal amounts, repayment periods, interest rates, etc.). The models are summarized below and described in detail in Appendix C, Borrower Cost Model Descriptions.

- Model I: Multiple Student Loans; No Deferment

This model calculated costs for one to five loans with all loans being consolidated during repayment. The independent variables in the model which affected all loans were:

* Ten years for parent borrowers under the PLUS program.

1. Interest rate;
2. Discount rate;
3. Repayment period; and
4. Grace period.

The loan-specific independent variables were:

1. Loan amount;
2. Origination fee rate;
3. Insurance premium rate; and
4. In-school period.

Given these independent variables, the model then calculated all the dependent variables (e.g., monthly payment, total payments, total fee, etc.) and arrived at a cost to the borrower over the life of the loan.

The monthly payments were discounted* to the time the loans were made in order to provide cost information that included the time value of money. The model assumed two different situations for the borrower's use of the disbursed funds: (1) all funds were paid out within 30 days; and (2) funds were disbursed in equal monthly installments over a 9-month school year. The first example was intended to represent the borrower who applied for a loan for payment of tuition and fees, while the second example represented the borrower who used the loan for living expenses. For both situations, a present value of cost was calculated for each of the five loans.

• Model II: Multiple Students Loans; Deferment Included

This model was identical to Model I, except that a deferment was granted to the borrower during the loan repayment period. In addition to the variables entered into Model I, this model allowed the user to enter the point in time when the deferment was granted, the length of the deferment period, and the length of the post-deferment grace period.

* The discount rate used in the analysis was 6%. This rate approximated the current long term inflation rate expected by some economists. The use of a discount rate equivalent to an inflation rate allowed the model to calculate the real value of the amounts repaid (i.e., expressed future repayments in terms of current year dollars). For purposes of this analysis, no adjustment was made for the income tax deduction of interest by the borrower.

- Model III: PLUS Loan

This model depicted costs for a borrower with a single loan in the PLUS program. Unlike Models I and II, the repayment period for this model was fixed at seven years.*

C. ANALYSIS OF BORROWER COSTS

Once a student decides to attend a post-secondary school, the student and/or the student's parents will be faced with the decision of how to finance the education. Two choices are available:**

1. Equity capital (i.e., savings from past income or current earnings); or
2. Borrowed capital (e.g., guaranteed student loans).

The financing decision will depend on the availability and cost of capital. Our analysis addressed the cost of capital borrowed under the GSL program.

We reviewed several borrowing scenarios in order to determine the magnitude of borrower costs. These scenarios were all based upon a \$1,000 loan with a seven-year repayment period. We assumed that each borrower was able to invest the proceeds of the loan for 30 days prior to paying his/her tuition bill. We also assumed that there was a time value to money (i.e., current dollars are worth more than future dollars).

We used a 6% projected long-term inflation rate to discount future period outlays to current period dollars. This rate is relatively low in comparison to the average rate over the last several years. At higher rates of inflation the real cost of these loans to the borrower and to the federal government would be lower.

* The PLUS model was developed for a single loan as opposed to multiple loans because each PLUS loan enters repayment immediately. Because the insurance premium is calculated as a percentage of the declining principal balance on each PLUS loan, it was also necessary to build a fixed repayment period into the model.

** The student usually assumes that the long term value of post-secondary education will exceed the cost of that education.

We considered a simple scenario in which a borrower obtained a 14%* PLUS loan for \$1,000. The borrower began to repay the loan within 30 days from the date of disbursement. In this scenario, the borrower's monthly payments were \$18.74. Over the life of the loan, this borrower repaid the original principal balance (\$1,000) plus \$574.16 in interest. The real value (i.e., adjusted for 6% inflation) of the borrower's total payments was \$1,278.04. This resulted in a real cost to the borrower of \$319.05.** Exhibit II-1 presents the computer output from this scenario.

We compared the scenario described above to a scenario in which a student borrower obtained a 9% student loan for \$1,000. We assumed that the borrower obtained the loan at the beginning of his or her last year of school, and began to repay the loan after graduating from college and completing a six-month grace period (i.e., one-and-a-half years after disbursement). In this scenario, the borrower's monthly payments were \$16.09. Over the life of the loan, this borrower repaid the original principal balance (\$1,000) plus \$351.48 in interest. The real value of the borrower's total payments was \$1,002.08 (i.e., the real cost is \$62.08).** Exhibit II-2 presents the computer output for this scenario.

This analysis revealed that the real cost to the borrower in the second scenario was less than in the first scenario. This difference was caused by two factors:

1. The interest rate to the borrower on the PLUS loan was higher than the student loan (i.e., the federal special allowance on student loans is higher); and
2. The PLUS loan entered repayment immediately while the federal government subsidized entirely the in-school and grace periods of the student loan.

* We used a 14% interest rate in order to be consistent with the assumptions made during our study of the costs to the federal government of the Guaranteed Student Loan (GSL) program. The study of federal costs, entitled "Study of the Cost and Flows of Capital in the Guaranteed Student Loan Program," was delivered under separate cover to the Commission.

** The real cost of the loan is equal to the real value of the borrower's total payments less the disbursed amount of the loan where the disbursed amount is equal to the principal amount less insurance premium and origination fee (if any).

We created two additional scenarios that emphasized the impact of the time value of money. We considered two scenarios in which a student obtained a 9% student loan for \$1,000. In both of these scenarios, the borrower obtained the loan at the beginning of his first year of college. Both borrowers attended college for five years. The first borrower began to repay his loan after graduating from college and completing a six-month grace period (i.e., five-and-a-half years after disbursement). The second borrower, however, obtained a two-year military deferment after completing his grace period. This borrower did not enter repayment until completing his two-year military deferment and a six-month post-deferment grace period (i.e., eight years after disbursement). In both scenarios, the borrowers' monthly payments were \$16.09. Both borrowers repaid the original principal balance plus \$351.48 in interest.

The real value of the first borrower's total payments was \$787.96. The real value of the second borrower's total payments was only \$677.83. The second borrower was able to wait for a longer period of time prior to beginning repayment and, as a result, was able to repay his loan using cheaper dollars. However, both borrowers paid in real dollars (principal and interest) substantially less than was originally borrowed. This situation occurred because the federal government pays all interest while the student borrower is in-school, grace, and deferment, and repayment of principal is postponed while the borrower is in one of these categories. Clearly, borrowers who are early in their education and/or expect deferments have the maximum incentive to borrow because in real terms they never repay what they borrow.

It should be noted also that this analysis used 6% for the long-term inflation rate; at higher inflation rates, the incentive to borrow would be even greater. Exhibit II-3 and Exhibit II-4 present the computer output from these scenarios. Exhibit II-5 presents a summary of the four scenarios described above.

D. ANALYSIS OF FEDERAL COSTS AND LENDER REVENUES

We reviewed the federal interest subsidy and special allowance costs for each of the four borrowing scenarios discussed above. To facilitate this analysis we used the automated models that we developed for the Commission as part of a study of costs to the federal government of the GSL program.* We used the Congressional Budget Office's current

* Refer to the Study of the Cost and Flows of Capital in the Guaranteed Student Loan Program for a detailed description of each model.

1. projections of Treasury bill rates to determine the projected special allowance costs.

The total federal interest subsidy and special allowance costs for these scenarios ranged from \$0 for the PLUS loan to \$800 for the student loan that entered repayment eight years after disbursement. The real value (i.e., adjusted for 6% inflation) of these costs ranged from \$0 to \$621. The real value of federal costs ranged from 0% to over 62% of the total loan amount. Federal subsidies are summarized in Exhibit II-6. Exhibits II-9 through II-15 present the computer output that summarizes the federal costs for each of the scenarios discussed above.

This analysis revealed that the real cost to the federal government was higher for student loans than for PLUS loans. Furthermore, student loans with longer in-school, grace and deferment (subsidized) periods cost the federal government more than student loans with shorter subsidized periods.

The combined borrower and federal payments is the revenue to the lender. Lender revenues were highest for PLUS loans and for student loans with longer repayment periods. Lender revenues are shown on Exhibits II-7 and II-8.

E. SUMMARY OF MAJOR OBSERVATIONS

Based on our analysis of the costs to borrowers participating in the GSL program, the following observations are warranted:

1. Most borrowers under the student loan program pay in real terms (adjusted for inflation) an effective interest rate of close to zero or, in many cases, less than zero. This occurs because:
 - a. All payment of principal and interest is delayed until after the student leaves school; and
 - b. When repayment begins, the interest rate paid by the borrower is below market rate.

The difference between what the student pays and what the lender demands for the capital is the total federal subsidy (i.e., in-school interest subsidy and special allowance).

2. Borrowers who hold loans for longer periods of time before entering repayment are able to realize more of an advantage than borrowers who enter repayment more quickly.

3. PLUS loans do not have the same advantages for borrowers as do student loans. This observation is based on the fact that PLUS loans usually enter repayment immediately and, as a result, do not enjoy any benefits from the federal interest subsidy.
4. In the absence of inflation, two student loans for the same amount, with the same interest rate and the same repayment period, will require the borrower to pay approximately the same amount in principal and interest regardless of the length of their respective in-school, grace, and deferment periods.
5. Borrowers who can delay the start of repayment while enjoying the benefits of a federal interest subsidy have a major incentive to borrow.
6. This analysis assumes a relatively low rate of expected inflation in comparison to the average rate over the last several years. At higher rates of inflation the incentive to borrow to finance education is increased, given that the interest rate to the borrower under the GSL program is fixed at below market rates (9% for students and 12% for parents) and subsidized by the federal government.
7. The real cost to the federal government is higher for student loans than for PLUS loans. Furthermore, student loans with longer in-school, grace, and deferment (subsidized) periods cost the federal government more than student loans with shorter subsidized periods.

Exhibits to Section II

Exhibit II-1

PLUS LOAN -- REPAYMENT BEGINS IN 30 DAYS

GUARANTEED STUDENT LOAN PROGRAM STUDENT OIGIS MODEL -- PLUS LOAN --

LOAN AMOUNT 1000.00
INTEREST RATE 14
DISCOUNT RATE 6
INSURANCE PREMIUM (%) 1

-- 7 YEAR REPAYMENT --

MONTHLY PAYMENT 18.74

PAYMENT SCHEDULE:

MONTH	PRINCIPAL BALANCE	INTEREST PAID	PRINCIPAL PAID
1	1000.00	11.67	7.07
2	992.93	11.50	7.16
3	985.77	11.50	7.24
4	978.53	11.42	7.32
5	971.21	11.33	7.41
6	963.88	11.24	7.50
7	956.38	11.14	7.58
8	948.72	11.07	7.67
9	941.05	10.90	7.76
10	933.29	10.80	7.85
11	925.44	10.80	7.94
12	917.49	10.78	8.04
13	909.46	10.61	8.13
14	901.33	10.52	8.22
15	893.10	10.42	8.32
16	884.78	10.32	8.42
17	876.36	10.22	8.52
18	867.85	10.12	8.62
19	859.23	10.02	8.72
20	850.52	9.92	8.82
21	841.78	9.82	8.92
22	832.78	9.72	9.02
23	823.74	9.61	9.13
24	814.63	9.50	9.24
25	805.39	9.40	9.34
26	796.05	9.29	9.45
27	786.59	9.18	9.56
28	777.03	9.07	9.67
29	767.36	8.95	9.79
30	757.57	8.84	9.90

MONTH	PRINCIPAL BALANCE	INTEREST PAID	PRINCIPAL PAID
31	747.67	8.72	10.02
32	737.65	8.61	10.13
33	727.51	8.49	10.25
34	717.26	8.37	10.37
35	706.89	8.25	10.49
36	696.48	8.12	10.62
37	685.78	8.00	10.74
38	675.84	7.89	10.86
39	664.18	7.75	10.99
40	653.19	7.62	11.12
41	642.07	7.49	11.25
42	630.82	7.36	11.38
43	619.44	7.23	11.51
44	607.92	7.09	11.65
45	596.28	6.96	11.78
46	584.49	6.82	11.92
47	572.57	6.68	12.06
48	560.51	6.54	12.20
49	548.31	6.40	12.34
50	535.97	6.25	12.49
51	523.48	6.11	12.63
52	510.85	5.96	12.78
53	498.07	5.81	12.93
54	485.14	5.66	13.08
55	472.06	5.51	13.23
56	458.83	5.35	13.39
57	445.44	5.20	13.54
58	431.98	5.04	13.70
59	418.28	4.88	13.86
60	404.33	4.72	14.02

MONTH	PRINCIPAL BALANCE	INTEREST PAID	PRINCIPAL PAID
61	390.31	4.55	14.19
62	376.13	4.39	14.35
63	361.77	4.22	14.52
64	347.25	4.05	14.69
65	332.57	3.88	14.86
66	317.71	3.71	15.03
67	302.67	3.53	15.21
68	287.46	3.35	15.39
69	272.08	3.17	15.57
70	256.51	2.99	15.75
71	240.76	2.81	15.93
72	224.83	2.62	16.12
73	208.72	2.44	16.30
74	192.41	2.24	16.50
75	175.92	2.05	16.69
76	159.23	1.86	16.88
77	142.35	1.66	17.08
78	125.27	1.46	17.28
79	107.99	1.26	17.48
80	90.51	1.06	17.68
81	72.82	0.85	17.89
82	54.93	0.64	18.10
83	36.83	0.43	18.31
84	18.52	0.22	18.52

TOTAL PAYMENTS 1574.16
TOTAL INTEREST 574.16

LOAN AMOUNT 1000.00

INSURANCE PREMIUM 41.01

DISBURSED AMOUNT 958.99

30 DAY INVESTMENT 4.77

DISCOUNTED VALUE OF
PAYMENTS -1292.01

NET PRESENT VALUE AT
TIME OF LOAN -1274.84

Exhibit II-2

STUDENT LOAN -- REPAYMENT BEGINS IN ONE-AND-A-HALF YEARS

GUARANTEED STUDENT LOAN PROGRAM - STUDENT COSTS MODEL
-MULTIPLE LOANS -

INTEREST RATE 9
DISCOUNT RATE 6
REPAYMENT (YEARS) 7
GRACE PERIOD (YEARS) .5

	LOAN 1	LOAN 2	LOAN 3	LOAN 4	LOAN 5
LOAN AMOUNT	0.00	5.00	0.00	0.00	1330.00
ORIGINATION FEE (%)	5	5	5	5	5
INSURANCE PREMIUM (%)	1	1	1	1	1
IN SCHOOL (YEARS)	1	1	1	1	1

MONTHLY PAYMENT 16.89
PAYMENT YEARS IN SCHOOL 1
MONTHLY DISCOUNT FACTOR .993 1.005

	LOAN 1	LOAN 2	LOAN 3	LOAN 4	LOAN 5	TOTAL
ALLOCATED MONTHLY PAYMENT	0.00	0.00	0.00	0.00	16.89	16.89
TOTAL PAYMENTS	0.00	0.00	0.00	0.00	1351.46	1351.46
TOTAL INTEREST	0.00	0.00	0.00	0.00	351.46	351.46

LOAN AMOUNT	0.00	0.00	0.00	0.00	1330.00	1330.00
ORIGINATION FEE	0.00	0.00	0.00	0.00	50.00	50.00
INSURANCE PREMIUM	0.00	0.00	0.00	0.00	10.00	10.00
DISBURSED AMOUNT	0.00	0.00	0.00	0.00	1400.00	1400.00

ALL FUNDS PAID OUT WITHIN 30 DAYS:

30-DAY INVESTMENT	0.00	0.00	0.00	0.00	4.73	
DISCOUNTED VALUE OF PAYMENTS	0.00	0.00	0.00	0.00	-1306.70	
NET PRESENT VALUE AT TIME OF LOAN:	0.00	0.00	0.00	0.00	-1302.30	
DISCOUNTED TO TIME OF FIRST LOAN:	0.00	0.00	0.00	0.00	-1080.30	-1080.30

FUNDS DISBURSED OVER 9 MONTHS:

9-MONTH INVESTMENTS	0.00	0.00	0.00	0.00	13.00	
DISCOUNTED VALUE OF PAYMENTS	0.00	0.00	0.00	0.00	-1306.70	
NET PRESENT VALUE AT TIME OF LOAN:	0.00	0.00	0.00	0.00	-983.71	
DISCOUNTED TO TIME OF FIRST LOAN:	0.00	0.00	0.00	0.00	-983.71	-983.71

Exhibit II-3

STUDENT LOAN -- REPAYMENT BEGINS IN FIVE-AND-A-HALF YEARSGUARANTEED STUDENT LOAN PROGRAM - STUDENT COSTS MODEL
-MULTIPLE LOANS -

INTEREST RATE 9
DISCOUNT RATE 6
REPAYMENT (YEARS) 7
GRACE PERIOD (YEARS) .5

	LOAN 1	LOAN 2	LOAN 3	LOAN 4	LOAN 5
LOAN AMOUNT	1000.00	0.00	0.00	0.00	0.00
ORIGINATION FEE (%)	5	5	5	5	5
INSURANCE PREMIUM (%)	1	1	1	1	1
IN SCHOOL (YEARS)	5	4	3	2	1

MONTHLY PAYMENT 16.89
MAXIMUM YEARS IN SCHOOL 5
MONTHLY DISCOUNT FACTOR .985 1.005

	LOAN 1	LOAN 2	LOAN 3	LOAN 4	LOAN 5	TOTAL
ALLOCATED MONTHLY PAYMENT	16.89	0.00	0.00	0.00	0.00	16.89
TOTAL PAYMENTS	1351.48	0.00	0.00	0.00	0.00	1351.48
TOTAL INTEREST	351.48	0.00	0.00	0.00	0.00	351.48

LOAN AMOUNT	1000.00	0.00	0.00	0.00	0.00	1000.00
ORIGINATION FEE	50.00	0.00	0.00	0.00	0.00	50.00
INSURANCE PREMIUM	50.00	0.00	0.00	0.00	0.00	50.00
DISBURSED AMOUNT	900.00	0.00	0.00	0.00	0.00	900.00

ALL FUNDS PAID OUT WITHIN 30 DAYS:

30-DAY INVESTMENT	4.48	0.00	0.00	0.00	0.00
DISCOUNTED VALUE OF PAYMENTS	-792.44	0.00	0.00	0.00	0.00

NET PRESENT VALUE AT TIME OF LOAN:	-787.96	0.00	0.00	0.00	0.00
------------------------------------	---------	------	------	------	------

DISCOUNTED TO TIME OF FIRST LOAN:	-787.96	0.00	0.00	0.00	0.00	-787.96
-----------------------------------	---------	------	------	------	------	---------

FUNDS DISBURSED OVER 9 MONTHS:

9-MONTH INVESTMENTS	22.89	0.00	0.00	0.00	0.00
DISCOUNTED VALUE OF PAYMENTS	-792.44	0.00	0.00	0.00	0.00

NET PRESENT VALUE AT TIME OF LOAN:	-770.34	0.00	0.00	0.00	0.00
------------------------------------	---------	------	------	------	------

DISCOUNTED TO TIME OF FIRST LOAN:	-770.34	0.00	0.00	0.00	0.00	-770.34
-----------------------------------	---------	------	------	------	------	---------

Exhibit II-4

STUDENT LOAN -- REPAYMENT BEGINS IN EIGHT YEARS

GUARANTEED STUDENT LOAN PROGRAM - STUDENT COSTS MODEL
- MULTIPLE LOANS, WITH DEFERMENT -

INTEREST RATE	9	YEAR DEFERMENT GRANTED	
DISCOUNT RATE	8	DURING REPAYMENT	0
REPAYMENT (YEARS)	7	DEFERMENT LENGTH (YEARS)	2
GRACE PERIOD (YEARS)	.5	POST-DEFERMENT GRACE PERIOD (YEARS)	.5

	LOAN 1	LOAN 2	LOAN 3	LOAN 4	LOAN 5
LOAN AMOUNT	1000.00	0.00	0.00	0.00	0.00
ORIGINATION FEE (%)	5	5	5	5	5
INSURANCE PREMIUM (%)	1	1	1	1	1
IN SCHOOL (YEARS)	5	4	3	2	1

MONTHLY PAYMENT 16.09
MAXIMUM YEARS IN SCHOOL 5
MONTHLY DISCOUNT FACTORS .305 1.005

	LOAN 1	LOAN 2	LOAN 3	LOAN 4	LOAN 5	TOTAL
ALLOCATED MONTHLY PAYMENT	16.09	0.00	0.00	0.00	0.00	16.09
TOTAL PAYMENTS	1351.48	0.00	0.00	0.00	0.00	1351.48
TOTAL INTEREST	351.48	0.00	0.00	0.00	0.00	351.48
LOAN AMOUNT	1000.00	0.00	0.00	0.00	0.00	1000.00
ORIGINATION FEE	50.00	0.00	0.00	0.00	0.00	50.00
INSURANCE PREMIUM	50.00	0.00	0.00	0.00	0.00	50.00
DISBURSED AMOUNT	900.00	0.00	0.00	0.00	0.00	900.00

ALL FUNDS PAID OUT WITHIN 30 DAYS:

30-DAY INVESTMENT	4.48	0.00	0.00	0.00	0.00	
DISCOUNTED VALUE OF PAYMENTS	-602.31	0.00	0.00	0.00	0.00	
NET PRESENT VALUE AT TIME OF LOAN1	-677.83	0.00	0.00	0.00	0.00	
DISCOUNTED TO TIME OF FIRST LOAN1	-677.83	0.00	0.00	0.00	0.00	-677.83

FUNDS DISBURSED OVER 9 MONTHS:

9-MONTH INVESTMENTS	22.09	0.00	0.00	0.00	0.00	
DISCOUNTED VALUE OF PAYMENTS	-602.31	0.00	0.00	0.00	0.00	
NET PRESENT VALUE AT TIME OF LOAN1	-668.22	0.00	0.00	0.00	0.00	
DISCOUNTED TO TIME OF FIRST LOAN1	-668.22	0.00	0.00	0.00	0.00	-668.22

Exhibit II-5

SUMMARY OF BORROWER COSTS

	<u>PLUS LOAN -- REPAYMENT BEGINS IN 30 DAYS</u>	<u>STUDENT LOAN -- REPAYMENT BEGINS IN 1 1/2 YEARS</u>	<u>STUDENT LOAN -- REPAYMENT BEGINS IN 5 1/2 YEARS</u>	<u>STUDENT LOAN -- REPAYMENT BEGINS IN 8 YEARS</u>
1. Loan Amount	\$1,000	\$1,000	\$1,000	\$1,000
2. Loan Interest Rate	14%	9%	9%	9%
3. Monthly Payment	\$ 18.74	\$ 16.09	\$ 16.09	\$ 16.09
4. Total Payments	\$1,574.16	\$1,351.48	\$1,351.48	\$1,351.48
5. Total Interest (1 - 4)	\$ 574.16	\$ 351.48	\$ 351.48	\$ 351.48
6. Insurance Premium	\$ 41.01	\$ 10.00	\$ 50.00	\$ 50.00
7. Origination Fee	N/A	\$ 50.00	\$ 50.00	\$ 50.00
8. Disbursed Amount (1 - (6 + 7))	\$ 958.99	\$ 940.00	\$ 900.00	\$ 900.00
9. Real Value of Payments (6% In- flation)	\$1,278.04	\$1,002.08	\$ 787.96	\$ 677.83
10. Real Cost (9 - 8)	\$ 319.05	\$ 62.08	\$ (112.04)*	\$ (222.17)*

* Real value of payments is less than the amount disbursed.

II-12

Exhibit II-6

SUMMARY OF FEDERAL SUBSIDIES

	<u>PLUS LOAN -- REPAYMENT BEGINS IN 30 DAYS</u>	<u>STUDENT LOAN -- REPAYMENT BEGINS IN 1 1/2 YEARS</u>	<u>STUDENT LOAN -- REPAYMENT BEGINS IN 5 1/2 YEARS</u>	<u>STUDENT LOAN -- REPAYMENT BEGINS IN 8 YEARS</u>
1. Loan Amount	\$1,000	\$1,000	\$1,000	\$1,000
2. Loan Interest Rate	14%	9%	9%	9%
3. Total Federal Interest Subsidy	\$ 0	\$ 135	\$ 495	\$ 720
4. Total Federal Special Allowance*	\$ 0	\$ 92	\$ 119	\$ 130
5. Origination Fee	N.A.	\$ 50	\$ 50	\$ 50
6. Total Federal Subsidy (3 + 4 - 5)	\$ 0	\$ 177	\$ 564	\$ 800
7. Real Cost to Federal Government (6% Inflation)	\$ 0	\$ 158	\$ 464	\$ 621
8. Real Cost as Percentage of Loan Amount	N.A.	16%	46%	62%

* Based upon Congressional Budget Office projected Treasury bill rates.

Exhibit II-7

SUMMARY OF LENDER REVENUES

	<u>PLUS LOAN -- REPAYMENT BEGINS IN 30 DAYS</u>	<u>STUDENT LOAN -- REPAYMENT BEGINS IN 1 1/2 YEARS</u>	<u>STUDENT LOAN -- REPAYMENT BEGINS IN 5 1/2 YEARS</u>	<u>STUDENT LOAN -- REPAYMENT BEGINS IN 8 YEARS</u>
1. Loan Amount	\$1,000	\$1,000	\$1,000	\$1,000
2. Interest Rate	14%	9%	9%	9%
3. Total Borrower Interest	\$ 574	\$ 351	\$ 351	\$ 351
4. Origination Fee	\$ 0	\$ 50	\$ 50	\$ 50
5. Total Federal Inter- est and Special Allowance	\$ 0	\$ 177	\$ 564	\$ 800
6. Total Lender Revenue** (3 + 4 + 5)	\$ 574	\$ 578	\$ 965	\$1,201

II-14

* Special Allowance Costs are calculated based upon Congressional Budget Office projected Treasury bill rates.

** This figure does not include any repayment of principal.

Exhibit II-8

REAL VALUE OF LENDER REVENUES

	<u>PLUS LOAN -- REPAYMENT BEGINS IN 30 DAYS</u>	<u>STUDENT LOAN -- REPAYMENT BEGINS IN 1 1/2 YEARS</u>	<u>STUDENT LOAN -- REPAYMENT BEGINS IN 5 1/2 YEARS</u>	<u>STUDENT LOAN -- REPAYMENT BEGINS IN 8 YEARS</u>
1. Loan Amount	\$1,000	\$1,000	\$1,000	\$1,000
2. Interest Rate	14%	9%	9%	9%
3. Real Value of Borrower Payments (6% Infla- tion)	\$1,278	\$1,002	\$ 788	\$ 678
4. Real Revenue on Borrower Payments*	\$ 278	\$ 2	\$ (212)	\$ (322)
5. Real Value of Federal Interest Subsidy and Special Allowance	\$ 0	\$ 158	\$ 464	\$ 621
6. Total Real Revenue to Lender	\$ 278	\$ 160	\$ 252	\$ 299

II-15

* This figure is equal to the Real Value of Borrower Payments less the Loan Amount.

Exhibit II-9

DETAILED FEDERAL COSTS -- PLUS LOAN

Trade Ross & Co

II-16

GUARANTEED STUDENT LOAN PROGRAM - FEDERAL COSTS MODEL																			
PORTFOLIO AMORTIZATION TABLE																			
- 14% LOANS	FISCAL YEAR 1982																		
	YR 1	YR 2	YR 3	YR 4	FY 83	FY 84	FY 85	FY 86	FY 87	FY 88	FY 89	FY 90	FY 91	FY 92	FY 93	FY 94	FY 95	FY 96	TOTAL
INITIAL PRINCIPAL BALANCE	0	0	0	1000	1000	896	777	646	495	327	140	0	0	0	0	0	0	0	
CANCELLATIONS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
NET DISBURSEMENTS	0	0	0	1000	1000	896	777	646	495	327	140	0	0	0	0	0	0	0	
CUMULATIVE BALANCE OUTSTANDING	0	0	0	1000	1000	896	777	646	495	327	140	0	0	0	0	0	0	0	
CLAIMS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PAYMENTS ON PRINCIPAL	0	0	0	0	104	115	123	130	149	167	140	0	0	0	0	0	0	0	
NET PRINCIPAL BALANCE	0	0	0	1000	896	777	646	495	327	140	0	0	0	0	0	0	0	0	
PROGRAM COSTS																			
OUTFLOWS:																			
DIRECT COSTS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SPECIAL ALLOWANCE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
REINSURANCE CLAIMS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
ADMINISTRATIVE COST ALLOWANCE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL DIRECT COSTS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
INDIRECT COSTS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
ADMINISTRATION & OVERHEAD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TAX EXEMPT SUBSIDY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL INDIRECT COSTS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL OUTFLOWS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
INFLOWS:																			
COLLECTIONS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
FEDERAL INSURANCE PREMIUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SPECIAL ALLOWANCE OFFSET	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL INFLOWS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
NET CASH FLOW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Exhibit II-10

DETAILED FEDERAL COSTS -- STUDENT LOAN

(Repayment begins in one-and-a-half years)

Touche Ross & Co

II-17

GUARANTEED STUDENT LOAN PROGRAM - FEDERAL COSTS MODEL																				
PORTFOLIO AGENTIZATION TABLE																				
YE LONG	YR 1	YR 2	YR 3	YR 4	YR 5	YR 6	YR 7	YR 8	YR 9	YR 10	YR 11	YR 12	YR 13	YR 14	YR 15	YR 16	YR 17	TOTAL		
INITIAL PRINCIPAL BALANCE	0	0	0	1000	1000	1000	1000	912	779	636	481	313	134	0	0	0	0	0	0	
CANCELLATIONS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
NET DISBURSEMENTS	0	0	0	1000	1000	1000	1000	912	779	636	481	313	134	0	0	0	0	0	0	
CUMULATIVE BALANCE OUTSTANDING	0	0	0	1000	1000	1000	1000	912	779	636	481	313	134	0	0	0	0	0	0	
CLAIMS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PAYMENTS ON PRINCIPAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
NET PRINCIPAL BALANCE	0	0	0	1000	1000	1000	912	779	636	481	313	134	0	0	0	0	0	0	0	
PROGRAM COSTS																				
OUTFLOWS:																				
DIRECT COSTS																				
INTEREST SUBSIDY	0	0	0	23	99	23	0	0	0	0	0	0	0	0	0	0	0	0	0	131
SPECIAL ALLOWANCE	0	0	0	11	17	20	21	12	0	0	0	0	0	0	0	0	0	0	0	0
WE INSURANCE (LARGE)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ADMINISTRATIVE COST ALLOWANCE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL DIRECT COSTS	0	0	0	33	107	43	21	12	0	0	0	0	0	0	0	0	0	0	0	131
INDIRECT COSTS																				
ADMINISTRATION & OVERHEAD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TAX (EXEMPT SUBSIDY)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL INDIRECT COSTS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL OUTFLOWS	0	0	0	33	107	43	21	12	0	0	0	0	0	0	0	0	0	0	0	131
INFLOWS:																				
COLLECTIONS																				
ORIGINATION FEE	0	0	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30
FEDERAL INSURANCE PREMIUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SPECIAL ALLOWANCE OFFSET	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL INFLOWS	0	0	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30
NET CASH FLOW	0	0	0	17	-107	-43	-21	-12	-6	-3	-2	-1	0	0	0	0	0	0	0	-100

Exhibit II-11

SUMMARY FEDERAL COSTS -- STUDENT LOAN

(Repayment begins in one-and-a-half years)

Trade Press & Co

II-18

== FINAL COSTS CALCULATION ==

DISCOUNT RATE 6
 ADVANCES DISBURSED, FISCAL YEAR 1962:
 FIRST QUARTER 0
 SECOND QUARTER 0
 THIRD QUARTER 0
 FOURTH QUARTER 0

	FISCAL YEAR 1962				FT 63	FT 64	FT 65	FT 66	FT 67	FT 68	FT 69	FT 70	FT 71	FT 72	FT 73	FT 74	FT 75	FT 76	FT 77	TOTAL
	QTR 1	QTR 2	QTR 3	QTR 4																
NET CASH FLOW - 7% PERIOD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET CASH FLOW - 9% PERIOD	0	0	0	17	-167	-43	-29	-12	-4	-3	-2	-1	0	0	0	0	0	0	0	-177
NET CASH FLOW - 14% PERIOD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ADVANCES DISBURSED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FEDERAL FINANCING COSTS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AGGREGATE CASH FLOW	0	0	0	17	-167	-43	-29	-12	-4	-3	-2	-1	0	0	0	0	0	0	0	0
DISCOUNTED CASH FLOW	0	0	0	16	-161	-36	-17	-10	-4	-2	-1	-1	0	0	0	0	0	0	0	0

TOTAL CASH FLOW, INCLUDING THE
 DISCOUNT RATE: -177

TOTAL CASH FLOW, DISCOUNTED TO
 BEGINNING OF FISCAL YEAR 1962: -158

Exhibit II-12

DETAILED FEDERAL COSTS -- STUDENT LOAN

(Repayment begins in five-and-a-half years)

Teach Ross & Co

II-19

GUARANTEED STUDENT LOAN PROGRAM - FEDERAL COSTS MODEL																			
PORTFOLIO AMORTIZATION TABLE																			
9% LOANS	YR 1	FY 1987 YR 2	YR 3	YR 4	FY 83	FY 84	FY 85	FY 86	FY 87	FY 88	FY 89	FY 90	FY 91	FY 92	FY 93	FY 94	FY 95	FY 96	FY 97
INITIAL PRINCIPAL BALANCE	0	0	0	1000	1000	1000	1000	1000	1000	1000	1000	1000	982	955	928	901	874	847	820
CANCELLATIONS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET DISBURSEMENTS	0	0	0	1000	1000	1000	1000	1000	1000	1000	1000	1000	982	955	928	901	874	847	820
CUMULATIVE BALANCE OUTSTANDING	0	0	0	1000	1000	1000	1000	1000	1000	1000	1000	1000	982	955	928	901	874	847	820
CLAIMS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PAYMENTS ON PRINCIPAL	0	0	0	1000	1000	1000	1000	1000	1000	1000	1000	1000	982	955	928	901	874	847	820
NET PRINCIPAL BALANCE	0	0	0	1000	1000	1000	1000	1000	1000	1000	1000	1000	982	955	928	901	874	847	820
PROGRAM COSTS																			
OUTFLOWS:																			
DIRECT COSTS	0	0	0	23	17	10	10	10	10	10	10	10	10	10	10	10	10	10	10
INTEREST SUBSIDY	0	0	0	11	17	26	21	14	9	23	0	0	0	0	0	0	0	0	0
SPECIAL ALLOWANCE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEALTHCARE CLAIMS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ADMINISTRATIVE COST ALLOWANCE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL DIRECT COSTS	0	0	0	33	34	36	31	24	19	33	10	10	10	10	10	10	10	10	10
INDIRECT COSTS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ADMINISTRATION & OVERHEAD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TAX EXEMPT SUBSIDY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL INDIRECT COSTS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL OUTFLOWS	0	0	0	33	34	36	31	24	19	33	10	10	10	10	10	10	10	10	10
INFLOWS:																			
COLLECTIONS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ORIGINATION FEE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FEDERAL INSURANCE PREMIUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SPECIAL ALLOWANCE OFFSET	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL INFLOWS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET CASH FLOW	0	0	0	17	-107	-110	-111	-104	-99	-20	-5	-5	-4	-3	-2	-1	0	0	0

Exhibit II-13

SUMMARY FEDERAL COSTS -- STUDENT LOAN

(Repayment begins in five-and-a-half years)

Fudge Ross & Co

II-20

===== GUARANTEED STUDENT LOAN PROGRAM - FEDERAL COSTS MODEL =====

*** FIVE COSTS CALCULATION ***

DISCOUNT RATE 6
 ADVANCES DISBURSED, FISCAL YEAR 1982:
 FIRST QUARTER 0
 SECOND QUARTER 0
 THIRD QUARTER 0
 FOURTH QUARTER 0

	FISCAL YEAR 1982				FY 83	FY 84	FY 85	FY 86	FY 87	FY 88	FY 89	FY 90	FY 91	FY 92	FY 93	FY 94	FY 95	FY 96	FY 97	TOTAL
	QTR 1	QTR 2	QTR 3	QTR 4																
NET CASH FLOW - 7% MODEL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET CASH FLOW - 9% MODEL	0	0	0	17	-107	-110	-111	-104	-99	-20	-5	-5	-4	-3	-2	-1	0	0	0	-542
NET CASH FLOW - 14% MODEL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ADVANCES DISBURSED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FEDERAL FINANCING COSTS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AGGREGATE CASH FLOW	0	0	0	17	-107	-110	-111	-104	-99	-20	-5	-5	-4	-3	-2	-1	0	0	0	
DISCOUNTED CASH FLOW	0	0	0	16	-106	-98	-93	-82	-74	-20	-3	-3	-2	-2	-1	0	0	0	0	

TOTAL CASH FLOW, INCLUDING THE
 DISCOUNT RATE: -542

TOTAL CASH FLOW, DISCOUNTED TO
 BEGINNING OF FISCAL YEAR 1982:
 -464

Exhibit II-14
DETAILED FEDERAL COSTS -- STUDENT LOAN
(Repayment begins in eight years)

GUARANTEED STUDENT LOAN PROGRAM - FEDERAL COSTS MODEL																			
PORTFOLIO AMORTIZATION TABLE																			
YE LOANS	FISCAL YEAR 1982																		
	QTR 1	QTR 2	QTR 3	QTR 4	FY 83	FY 84	FY 85	FY 86	FY 87	FY 88	FY 89	FY 90	FY 91	FY 92	FY 93	FY 94	FY 95	FY 96	FY 97
INITIAL PRINCIPAL BALANCE	0	0	0	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	966	799	618	423	214	0
CANCELLATIONS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET DISBURSEMENTS	0	0	0	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	966	799	618	423	214	0
CUMULATIVE BALANCE SUPERVISING CLAIMS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PAYMENTS ON PRINCIPAL	0	0	0	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	966	799	618	423	214	0
NET PRINCIPAL BALANCE	0	0	0	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	966	799	618	423	214	0
FEDERAL COSTS																			
OUTFLOW:																			
DIRECT COSTS	0	0	0	23	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
INTEREST SUBSIDY	0	0	0	11	17	20	21	14	7	0	0	0	0	0	0	0	0	0	0
SPECIAL ALLOWANCE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INSURANCE CLAIMS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ADMINISTRATIVE COST ALLOWANCE	0	0	0	33	107	110	111	104	99	96	96	73	6	5	4	3	2	1	0
TOTAL DIRECT COSTS	0	0	0	33	107	110	111	104	99	96	96	73	6	5	4	3	2	1	0
INDIRECT COSTS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ADMINISTRATION & OVERHEAD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TAX EXEMPT SUBSIDY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL INDIRECT COSTS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL OUTFLOW	0	0	0	33	107	110	111	104	99	96	96	73	6	5	4	3	2	1	0
INFLOW:																			
COLLECTIONS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ORIGINATION FEE	0	0	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FEDERAL INSURANCE PREMIUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SPECIAL ALLOWANCE OFFSET	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL INFLOW	0	0	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET CASH FLOW	0	0	0	17	-107	-110	-111	-104	-99	-96	-96	-73	-6	-5	-4	-3	-2	-1	0

Exhibit II-15

SUMMARY FEDERAL COSTS -- STUDENT LOAN

(Repayment begins in eight years)

Tudor Ross & Co

*** FIVE COSTS CALCULATION ***

DISCOUNT RATE 6
 ADVANCES DISBURSED, FISCAL YEAR 1967:
 FIRST QUARTER 0
 SECOND QUARTER 0
 THIRD QUARTER 0
 FOURTH QUARTER 0

	FISCAL YEAR 1967				FT 63	FT 64	FT 65	FT 66	FT 67	FT 68	FT 69	FT 70	FT 71	FT 72	FT 73	FT 74	FT 75	FT 76	FT 77	TOTAL
	QTR 1	QTR 2	QTR 3	QTR 4																
NET CASH FLOW - 7% MODEL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET CASH FLOW - 9% MODEL	0	0	0	17	-107	-110	-111	-104	-99	-96	-96	-73	-6	-5	-4	-3	-2	-1	0	-606
NET CASH FLOW - 14% MODEL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ADVANCES DISBURSED	0	0	0	0																
FEDERAL FINANCING COSTS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ACCUMULATED CASH FLOW	0	0	0	17	-107	-110	-111	-104	-99	-96	-96	-73	-6	-5	-4	-3	-2	-1	0	
DISCOUNTED CASH FLOW	0	0	0	16	-101	-96	-92	-82	-74	-68	-64	-46	-4	-3	-2	-1	-1	0	0	

TOTAL CASH FLOW, INCLUDING THE
 DISCOUNT RATE: -606

TOTAL CASH FLOW, DISCOUNTED TO
 PRESENT VALUE OF FISCAL YEAR 1967: -621

II-22

III. DESCRIPTION OF SCENARIOS

III. DESCRIPTION OF SCENARIOS

In order to further analyze borrower costs, three different scenarios were developed. These scenarios reflect a range of:

- Educational costs;
- Post-graduate employment situations; and
- Length of time before repayment begins.

A. SCENARIO ONE -- HIGH COST EDUCATIONAL INSTITUTION (Exhibits III-1 and III-2)

In this scenario, the borrower began attendance at a high cost private college in FY 82. He obtained a 9% guaranteed student loan for the maximum amount (\$2,500) each year, beginning in his first year of college. The borrower graduated from college in four years, completed his six-month grace period and immediately enrolled in graduate business school.

The borrower attended graduate school for two years and obtained a 14% PLUS loan for \$3,000 each year to help finance his M.B.A. During graduate school, the borrower received an authorized deferment on his student and PLUS loans. The borrower made arrangements with his lender to accrue and capitalize the interest on his PLUS loan during his deferment and post-deferment grace periods.

Following graduate school, the borrower entered a seven-year repayment period. The details of this borrower's payments are shown on Exhibits III-1 and III-2. As shown on the Exhibits, the total disbursed capital was \$16,683.93 (\$9250 under the student loan program and \$7433.93 under the PLUS loan program). The real value of the borrower's payments under the student loan program was \$8137.77 (assuming a 6% inflation rate). This amount was equivalent to 88% of the total borrowed capital under the student loan program. The real value of the borrower's payments under the PLUS program was \$9823.36 or 132% of the total borrowed capital under the PLUS program.

B. SCENARIO TWO -- MODERATE COST EDUCATIONAL INSTITUTION (Exhibit III-3)

In this scenario, the borrower began attendance at a public four-year university in FY 82. He obtained a 9% guaranteed student loan for \$2213* each year beginning in

* \$2,213 was the average loan size in FY 82.

his first year of college. The borrower graduated from college in four years, completed his six-month grace period, and arranged for a seven-year repayment period. The borrower's monthly payments were \$142.42.

Under this scenario the total amount disbursed to the borrower was \$8188.10. In real terms (assuming 6% inflation) the borrower repaid \$8124.15. The real value paid was 99% of the amount disbursed.

C. SCENARIO THREE -- LOW COST EDUCATIONAL INSTITUTION
(Exhibit III-4)

In this scenario, the borrower began attendance at a two-year vocational school in FY 82. He obtained a 9% guaranteed student loan for \$1,500 each year. The borrower completed vocational school in two years and completed his six-month grace period. He arranged for a six-and-a-half year repayment period -- the maximum period that would still allow him to make the \$50 minimum required monthly payment amount. The borrower's monthly payments were \$50.94.

Under scenario three, the amount disbursed to the borrower was \$2805.00 while the real value paid (assuming 6% inflation) was \$2900.46. The amount paid was 103% of the amount disbursed.

D. SUMMARY OF MAJOR OBSERVATIONS

Based upon our analysis of three borrower scenarios, the following major observations are warranted:

1. The total federal subsidy (i.e., interest subsidy and special allowance) is structured to provide the most benefit to student borrowers:
 - a. Attending high cost institutions (requiring the maximum allowable amount be borrowed);
 - b. Attending four-year institutions (as opposed to two-year institutions); and
 - c. Acquiring post-graduate educations (with associated deferments).

This occurs because the subsidy is highest when the maximum amount is borrowed and repayment is delayed as long as possible.

2. PLUS loans are a much more costly method of financing post-secondary education than GSL student loans. The costliness of the PLUS loans is a result of the higher interest rate on the PLUS loans and the fact that PLUS loans are ineligible for federal interest subsidy.
3. The in-school subsidy is the critical factor as to whether it is rational to borrow. All the scenarios show that, while in-school subsidies are available, it is to the borrower's advantage to borrow as much as possible, as early as possible.
4. As structured, the GSL program for students presents a paradox in that student borrowers who undertake an extended education:
 - a. Pay less in real terms for the borrowed capital;
 - b. Cost the federal government more in subsidy payments; and yet
 - c. Receive the greatest potential benefit (e.g., higher lifetime earnings) from their education.

Touche Ross & Co

Exhibits to Section III

Exhibit III-1

SCENARIO ONE -- STUDENT LOAN

GUARANTEED STUDENT LOAN PROGRAM - STUDENT COSTS MODEL
- MULTIPLE LOANS, WITH DEFERMENT -

INTEREST RATE	9	YEAR DEFERMENT GRANTED	0
DISCOUNT RATE	6	DURING REPAYMENT	
REPAYMENT (YEARS)	7	DEFERMENT LENGTH (YEARS)	1.5
GRACE PERIOD (YEARS)	.5	POST-DEFERMENT GRACE PERIOD (YEARS)	.5

	LOAN 1	LOAN 2	LOAN 3	LOAN 4	LOAN 5
LOAN AMOUNT	2500.00	2500.00	2500.00	2500.00	0.00
ORIGINATION FEE (%)	5	5	5	5	5
INSURANCE PREMIUM (%)	1	1	1	1	1
IN SCHOOL (YEARS)	4	3	2	1	1

MONTHLY PAYMENT 160.89
MAXIMUM YEARS IN SCHOOL 4
MONTHLY DISCOUNT FACTOR .005 1.005

	LOAN 1	LOAN 2	LOAN 3	LOAN 4	LOAN 5	TOTAL
ALLOCATED MONTHLY PAYMENT	40.22	40.22	40.22	40.22	0.00	160.89
TOTAL PAYMENTS	3378.71	3378.71	3378.71	3378.71	0.00	13514.83
TOTAL INTEREST	878.71	878.71	878.71	878.71	0.00	3514.83

LOAN AMOUNT	2500.00	2500.00	2500.00	2500.00	0.00	10000.00
ORIGINATION FEE	125.00	125.00	125.00	125.00	0.00	500.00
INSURANCE PREMIUM	100.00	75.00	50.00	25.00	0.00	250.00
DISBURSED AMOUNT	2275.00	2300.00	2325.00	2350.00	0.00	9250.00

ALL FUNDS PAID OUT WITHIN 30 DAYS:

30-DAY INVESTMENT	11.32	11.50	11.63	11.75	0.00
DISCOUNTED VALUE OF PAYMENTS	-1866.00	-1981.09	-2103.28	-2233.00	0.00

NET PRESENT VALUE AT TIME OF LOAN:	-1854.68	-1969.59	-2091.65	-2221.25	0.00	-8137.17
------------------------------------	----------	----------	----------	----------	------	----------

DISCOUNTED TO TIME OF FIRST LOAN:	-1854.68	-1855.17	-1855.68	-1856.18	0.00	-7421.71
-----------------------------------	----------	----------	----------	----------	------	----------

FUNDS DISBURSED OVER 9 MONTHS:

9-MONTH INVESTMENTS	55.85	56.46	57.08	57.69	0.00
DISCOUNTED VALUE OF PAYMENTS	-1866.00	-1981.09	-2103.28	-2233.00	0.00

NET PRESENT VALUE AT TIME OF LOAN:	-1810.15	-1924.63	-2046.20	-2175.31	0.00
------------------------------------	----------	----------	----------	----------	------

DISCOUNTED TO TIME OF FIRST LOAN:	-1810.15	-1812.82	-1815.36	-1817.79	0.00	-7256.12
-----------------------------------	----------	----------	----------	----------	------	----------

Exhibit III-2

SCENARIO ONE -- PLUS LOAN

GUARANTEED STUDENT LOAN PROGRAM
STUDENT COSTS MODEL
-- PLUS LOAN --

LOAN AMOUNT 7480.00
INTEREST RATE 14
DISCOUNT RATE 4
INSURANCE PREMIUM (EI) 1

-- 7 YEAR REPAYMENT --

MONTHLY PAYMENT 143.72

PAYMENT SCHEDULE:

MONTH	PRINCIPAL BALANCE	INTEREST PAID	PRINCIPAL PAID
1	7480.00	89.60	54.32
2	7625.68	88.97	54.96
3	7570.72	88.33	55.60
4	7515.12	87.68	56.25
5	7458.87	87.02	56.90
6	7401.97	86.36	57.57
7	7344.40	85.68	58.24
8	7286.17	85.01	58.92
9	7227.25	84.32	59.61
10	7167.64	83.62	60.30
11	7107.34	82.92	61.00
12	7046.34	82.21	61.72
13	6984.62	81.49	62.44
14	6922.19	80.76	63.16
15	6859.02	80.02	63.90
16	6795.12	79.28	64.65
17	6730.47	78.52	65.40
18	6665.07	77.76	66.16
19	6598.91	76.99	66.94
20	6531.97	76.21	67.72
21	6464.25	75.42	68.51
22	6395.75	74.62	69.31
23	6326.44	73.81	70.11
24	6256.33	72.99	70.93
25	6185.39	72.16	71.76
26	6113.63	71.33	72.60
27	6041.04	70.48	73.44
28	5967.59	69.62	74.30
29	5893.29	68.76	75.17
30	5818.12	67.88	76.05

MONTH	PRINCIPAL BALANCE	INTEREST PAID	PRINCIPAL PAID
31	5742.08	66.99	76.93
32	5665.14	66.09	77.83
33	5587.31	65.19	78.74
34	5508.58	64.27	79.66
35	5428.92	63.34	80.59
36	5348.33	62.40	81.53
37	5266.81	61.45	82.48
38	5184.33	60.48	83.44
39	5100.89	59.51	84.41
40	5016.48	58.53	85.40
41	4931.08	57.53	86.39
42	4844.69	56.52	87.40
43	4757.28	55.50	88.42
44	4668.86	54.47	89.45
45	4579.41	53.43	90.50
46	4488.91	52.37	91.55
47	4397.36	51.30	92.62
48	4304.74	50.22	93.70
49	4211.04	49.13	94.79
50	4116.24	48.02	95.90
51	4020.34	46.90	97.02
52	3923.32	45.77	98.15
53	3825.17	44.63	99.30
54	3725.88	43.47	100.45
55	3625.42	42.30	101.63
56	3523.79	41.11	102.81
57	3420.98	39.91	104.01
58	3316.97	38.70	105.23
59	3211.75	37.47	106.45
60	3105.29	36.23	107.69

MONTH	PRINCIPAL BALANCE	INTEREST PAID	PRINCIPAL PAID
61	2997.68	34.97	108.95
62	2888.65	33.79	110.22
63	2778.42	32.41	111.51
64	2666.92	31.11	112.81
65	2554.11	29.80	114.13
66	2439.98	28.47	115.46
67	2324.52	27.12	116.80
68	2207.72	25.76	118.17
69	2089.55	24.38	119.55
70	1970.01	22.98	120.94
71	1849.07	21.57	122.35
72	1726.72	20.15	123.78
73	1602.94	18.70	125.22
74	1477.72	17.24	126.68
75	1351.03	15.76	128.16
76	1222.87	14.27	129.64
77	1093.22	12.75	131.17
78	962.05	11.22	132.70
79	829.35	9.68	134.25
80	695.10	8.11	135.81
81	559.29	6.53	137.40
82	421.89	4.92	139.00
83	282.89	3.30	140.62
84	142.26	1.66	142.26

TOTAL PAYMENTS 12009.54
TOTAL INTEREST 4409.54
LOAN AMOUNT 6000.00
INSURANCE PREMIUM 246.07
DISBURSED AMOUNT 5753.93
30 DAY INVESTMENT DISCOUNTED VALUE OF PAYMENTS 28.63
NET PRESENT VALUE AT TIME OF LOAN -9823.36

Exhibit III-3
SCENARIO TWO

GUARANTEED STUDENT LOAN PROGRAM - STUDENT COSTS MODEL
-MULTIPLE LOANS-

INTEREST RATE 9
DISCOUNT RATE 6
REPAYMENT (YEARS) 7
GRACE PERIOD (YEARS) .5

	LOAN 1	LOAN 2	LOAN 3	LOAN 4	LOAN 5
LOAN AMOUNT	2213.00	2213.00	2213.00	2213.00	0.00
ORIGINATION FEE (%)	5	5	5	5	5
INSURANCE PREMIUM (%)	1	1	1	1	1
IN SCHOOL (YEARS)	4	3	2	1	1

MONTHLY PAYMENT 142.42
MAXIMUM YEARS IN SCHOOL 4
MONTHLY DISCOUNT FACTOR .005 1.005

	LOAN 1	LOAN 2	LOAN 3	LOAN 4	LOAN 5	TOTAL
ALLOCATED MONTHLY PAYMENT	35.61	35.61	35.61	35.61	0.00	142.42
TOTAL PAYMENTS	2990.83	2990.83	2990.83	2990.83	0.00	11963.32
TOTAL INTEREST	777.83	777.83	777.83	777.83	0.00	3111.32
LOAN AMOUNT	2213.00	2213.00	2213.00	2213.00	0.00	8852.00
ORIGINATION FEE	110.65	110.65	110.65	110.65	0.00	442.60
INSURANCE PREMIUM	88.52	66.39	44.26	22.13	0.00	221.30
DISBURSED AMOUNT	2013.83	2035.96	2058.09	2080.22	0.00	8188.10

ALL FUNDS PAID OUT WITHIN 30 DAYS:

30-DAY INVESTMENT	10.02	10.18	10.29	10.40	0.00	
DISCOUNTED VALUE OF PAYMENTS	-1861.82	-1976.65	-2098.57	-2228.01	0.00	
NET PRESENT VALUE AT TIME OF LOAN:	-1851.80	-1966.47	-2088.28	-2217.60	0.00	-8124.15
DISCOUNTED TO TIME OF FIRST LOAN:	-1851.80	-1852.23	-1852.69	-1853.13	0.00	-7409.86

FUNDS DISBURSED OVER 9 MONTHS:

9-MONTH INVESTMENTS	49.44	49.98	50.52	51.07	0.00	
DISCOUNTED VALUE OF PAYMENTS	-1861.82	-1976.65	-2098.57	-2228.01	0.00	
NET PRESENT VALUE AT TIME OF LOAN:	-1812.38	-1926.67	-2048.05	-2176.94	0.00	
DISCOUNTED TO TIME OF FIRST LOAN:	-1812.38	-1814.75	-1817.00	-1819.15	0.00	-7263.28

Exhibit III-4
SCENARIO THREE

GUARANTEED STUDENT LOAN PROGRAM - STUDENT COSTS MODEL
- MULTIPLE LOANS -

INTEREST RATE
DISCOUNT RATE
REPAYMENT (YEARS)
GRACE PERIOD (YEARS)

9
6
6.5
5

	LOAN 1	LOAN 2	LOAN 3	LOAN 4	LOAN 5
LOAN AMOUNT	1500.00	1500.00	0.00	0.00	0.00
ORIGINATION FEE (%)	5	5	5	5	5
INSURANCE PREMIUM (%)	1	1	1	1	1
IN SCHOOL (YEARS)	2	1	1	1	1

MONTHLY PAYMENT 50.94
MAXIMUM YEARS IN SCHOOL 2
MONTHLY DISCOUNT FACTOR .005 1.005

	LOAN 1	LOAN 2	LOAN 3	LOAN 4	LOAN 5	TOTAL
ALLOCATED MONTHLY PAYMENT	25.47	25.47	0.00	0.00	0.00	50.94
TOTAL PAYMENTS	1986.75	1986.75	0.00	0.00	0.00	3973.49
TOTAL INTEREST	486.75	486.75	0.00	0.00	0.00	973.49

LOAN AMOUNT	1500.00	1500.00	0.00	0.00	0.00	3000.00
ORIGINATION FEE	75.00	75.00	0.00	0.00	0.00	150.00
INSURANCE PREMIUM	30.00	15.00	0.00	0.00	0.00	45.00

DISBURSED AMOUNT	1395.00	1410.00	0.00	0.00	0.00	2805.00
------------------	---------	---------	------	------	------	---------

ALL FUNDS PAID OUT WITHIN 30 DAYS:

30-DAY INVESTMENT	6.94	7.05	0.00	0.00	0.00	
DISCOUNTED VALUE OF PAYMENTS	-1413.63	-1500.82	0.00	0.00	0.00	
NET PRESENT VALUE AT TIME OF LOAN:	-1406.69	-1493.77	0.00	0.00	0.00	-2900.46
DISCOUNTED TO TIME OF FIRST LOAN:	-1406.69	-1406.99	0.00	0.00	0.00	-2813.68

FUNDS DISBURSED OVER 9 MONTHS:

9-MONTH INVESTMENTS	34.25	34.61	0.00	0.00	0.00	
DISCOUNTED VALUE OF PAYMENTS	-1413.63	-1500.82	0.00	0.00	0.00	
NET PRESENT VALUE AT TIME OF LOAN:	-1379.39	-1466.21	0.00	0.00	0.00	
DISCOUNTED TO TIME OF FIRST LOAN:	-1379.39	-1381.03	0.00	0.00	0.00	-2760.41

Appendix A

SUMMARY OF SELECTED LITERATURE
AND LIST OF SOURCES

Appendix A

SUMMARY OF SELECTED LITERATURE AND LIST OF SOURCES: STUDENT LOAN BURDEN

Our study focused only on the issue of cost to the student. However, as part of the background research, we reviewed the literature on student loan burdens to identify the approaches taken to estimating costs to the student.

STUDENT LOAN BURDEN

The subject of student loan burden is addressed in detail in only a few of the sources we reviewed. Most sources examined loan burden as a component of other issues (e.g., consideration of burden in developing an income contingent loan program). Some sources introduced the subject of burden but presented no details about specific burden projections.

Specific information on student loan burden is available, however. Perhaps the most comprehensive source is the Education Policy Research Institute's (EPRI) report, Indebtedness to Finance Postsecondary Education which develops and documents a model of financial loan burden. The EPRI report also applies the model to a discussion of loan burden policy issues. Another source of particular interest is Horch's paper entitled "Estimating Manageable Loan Limits for Graduate and Professional Students."

Discussions on the subject of student loan burden arose from the desire to determine manageable limits for education debt. The question of exactly what is manageable is the basis for debate on the subject.

There is general agreement that the loan burden is a function of both the level of educational debt and the borrower's ability to repay the loan, measured as some relationship between future payments and future income. Several sources attempt to quantify this relationship. Any calculation of loan burden must therefore contain some measure of a borrower's projected earnings. EPRI's Indebtedness to Finance Postsecondary Education notes that earnings may be a function of the following:

- Level of educational attainment;
- Work experience;
- Previous earnings;
- Type of job;
- Hours worked;

- Geographic location;
- Post schooling training; and
- Other factors.

Discussions pertaining to projected earnings are found in a number of the sources reviewed.

Loan burden, then, is calculated as a function of the following (identified in the EPRI report):

- Borrower's "stock of loans;"
- Repayment schedule for the loans;
- Borrower's earnings during repayment; and
- Borrower's expenditure patterns.

The EPRI model attempts to quantify this relationship and to project future loan burdens for prospective borrowers.

BIBLIOGRAPHY

- Bayus, Barry, and Kendis, Kurt. "An Initial Econometric Consideration of Supply and Demand in the Guaranteed Student Loan Program." Journal of Education Finance 7 (Winter 1982): 301-322.
- Becker, Gary S. Human Capital: A Theoretical and Empirical Analysis, With Special Reference to Education. New York: Columbia University Press, 1975.
- Burney, Ira L., and Dresch, Stephen P. "The Capital Market for Advanced Education: An Analysis of Private Market Failure and the Failure of Public Policy." New Haven, Connecticut: Institute for Demographic and Economic Studies, Inc., March 15, 1978.
- Education Policy Research Institute, Indebtedness to Finance Post-secondary Education. Washington, D.C. October 1981.
- Goldberg, Robert D. The Dresch-Goldberg VTL Simulation Model. Yale University, June 1, 1973.
- Hartman, Robert W. Credit for College: Public Policy for Student Loans. New York: McGraw Hill, 1971.
- Horch, Dwight. "Estimating Manageable Loan Limits for Graduate and Professional Students." In Student Loans: Alternatives for Reauthorization. Washington, D.C.: National Association of Financial Aid Administrators, April 10-11, 1978.
- Johnstone, D. Bruce. New Patterns for College Lending: Income Contingent Loans. New York: Columbia University Press, 1972.
- Raymond, Richard, and Sesnowitz, Michael. "On the Repayment Burden of Income-Contingent Student Loans." Public Policy 24 (Summer 1976): 423-436.
- Riddle, Wayne, Income Contingent Loans: Background and Analysis. Washington, D.C.: Congressional Research Service, April 29, 1982.
- U.S. Congress. House. Testimony of Congressman Andrew Maquire Before The Subcommittee on Postsecondary Education of the House Education and Labor Committee. Washington, D.C., June 5, 1979.
- U.S. Department of Education. Office of Planning and Budget. Recent Trends in Federal Student Aid: The Rise of The "Nonreturnable Loan". June 1981.

Appendix B

**DESCRIPTION OF THE GUARANTEED
STUDENT LOAN PROGRAM**

Appendix B

DESCRIPTION OF THE GUARANTEED
STUDENT LOAN PROGRAM

A. CHARACTERISTICS OF STUDENT LOANS

The GSL Program has certain unique characteristics which were designed in order to meet the needs of students.

1. The loan is guaranteed (i.e., the lender will not incur a loss as long as the lender acts in accordance with program regulations). In the event of default, the guarantee agency pays the lender, and the federal government reimburses the agency.
2. Unlike most loans, in which the borrower starts to make monthly payments as soon as he receives the proceeds of the loan, the student does not start repaying the principal until the expiration of the grace period after the student has completed his education or dropped out of school. In addition, the start of repayment can be further deferred under certain circumstances. Since the loans are made annually a student may have several separate loans, which will be consolidated for establishing a single repayment schedule.*
3. Although the principal is not due while the student is in school, interest is paid to lenders immediately by the federal government during the in-school and grace periods. (See Exhibit B-1.)
4. The interest rate is 9% for students who first borrowed after January 1, 1981 and 7% for students who borrowed before that date and still have outstanding loan balances.
5. Repayment begins nine to twelve months after leaving school (7% loans) or six months after leaving school (9% loans). The federal government continues to provide the special allowance to a lender.
6. The life of a student loan is much longer than a conventional consumer loan. The average student loan has a life of approximately nine to ten years

* Under current federal regulations, the cumulative loan maximum for dependent undergraduates is \$12,500 and for graduates \$25,000.

with some loans in existence for 15 years. This long loan life can constitute an administrative burden both to the lender and guarantee agency.

B. PHASES OF A STUDENT LOAN

The GSL Program is a complex program requiring different student, lender, school and state actions depending on the status of the student and the loan. There are five phases in the life of a loan:

1. Initiation - the period from initial contact between student and lender through loan application and disbursement;
2. Interim Servicing - the period when the student is in school, in deferment, or in the grace period;
3. Conversion - the actions required to convert a loan or group of loans from the interim to repayment phase;
4. Repayment - the period when the loans are being repaid, normally in monthly installments; and
5. Delinquency and/or Default - the activities required by the lender under due diligence to collect on delinquent loans or file a claim to the guarantee agency for payment under the guarantee, if required.

During the initiation phase, a student completes an application, sends the application to the educational institution which submits the application to the lender. The lender application is sent to the guarantee agency. Upon approval, the lender disburses the loan amount either in one lump sum or as a series of payments. At the time of disbursement, an insurance premium and origination fee are charged to the student. The insurance fee is usually 1% per year of the principal amount for the in-school and grace periods. The origination fee is 5% of the principal. Both fees are deducted from the loan amount.

During interim phase, lenders bill the Department of Education (ED) for the interest subsidy and special allowance on subsidized loans.

During conversion, the lenders are responsible for contacting the student to arrange a repayment schedule. Federal regulations for due diligence emphasize the importance of this period in developing responsible repayment practices. The lender usually corresponds with the student at the time of

graduation and continues contact efforts until the repayment schedule is finalized. When the repayment schedule is arranged, lenders set the loans up on an installment loan system. Lenders consolidate all notes for one student which bear the same interest rate.

During the repayment period, lenders process payments. The repayment period is concluded when the note has been fully repaid or a claim has been filed.

Delinquency occurs if a student fails to convert or misses a payment. Lenders are required to initiate a series of contact attempts resulting in a final demand letter. Many guarantee agencies require that the lender notify them of delinquency so that they can offer assistance in getting the student back on repayment. If the student continues to be delinquent, the lender can file a request for payment (a claim) usually 120 days after the beginning of delinquency. If the lender has met all due diligence requirements, the guarantee agency will buy the loan from the lender. Once the agency owns the loan, it will receive reinsurance from ED and attempt to get the student back on repayment.

C. PLUS PROGRAM

A major initiative under the Education Amendments of 1980 was creation of a GSL parent loan program. This program allowed parents of dependent, undergraduate students to borrow funds at below market rates to finance their children's higher education costs. In 1981, independent undergraduate students and graduate professional students were also given eligibility to take out loans under the PLUS program.

Parent loans would, however, receive no interest subsidy and repayment would start within sixty days after loan disbursement. Parent loans were to be federally guaranteed and supported by special allowance payments to lenders. Annual and cumulative limits were placed on parent loan amounts as well. The effect of allowing parents to borrow was to increase the demand for loans; although the effect on supply remains uncertain because the program has not yet been fully implemented in most states.

A PLUS loan more closely resembles the typical consumer loan than does a GSLP loan. There are, however, some major differences between a PLUS loan and a consumer loan. They are:

- The PLUS loan has a below market rate (currently 12%)^{*}.
- The PLUS loans are guaranteed just like a student loan.
- The repayment period of the loan can be up to 10 years.

^{*} The rate on PLUS loans is fixed regardless of when initiated. Consequently, in a period of low interest rates (i.e., consumer loans available below 12%), PLUS loans could be above the current market rate.

Exhibit B-1

PAYMENT OF PRINCIPAL AND INTEREST ON STUDENT LOANS

	PHASE OF LOAN LIFE		
	<u>School</u>	<u>Grace</u>	<u>Repayment</u>
PRINCIPAL	Not Paid	Not Paid	Student Repays
INTEREST	Federal Government Pays	Federal Government Pays	Student Pays
SPECIAL ALLOWANCE (Floats; pegged to T-Bills)	Federal Government Pays	Federal Government Pays	Federal Government Pays

Appendix C

BORROWER COST MODEL DESCRIPTIONS

Appendix C

BORROWER COST MODEL DESCRIPTIONS

This section contains detailed descriptions of all three models. The models were put up on an Apple microcomputer using a standard software package. These models have been designed to allow the user a great deal of flexibility in constructing different loan scenarios. This flexibility has resulted in little logic within the framework of the models. Therefore, no real editing of entered or calculated values is performed; for example:

- Loan amounts are not checked for compliance with maximum loan regulations.
- Monthly payments are not checked for compliance with minimum payment regulations.
- Repayment and grace periods, origination fees, and insurance premiums are also not edited.

The editing of these values is left to the user.

Detailed descriptions of each model, including definitions of all entered and calculated values, are contained on the following pages.

BORROWER COST MODEL DESCRIPTIONS

MODEL 1: MULTIPLE LOANS MODEL
(NO DEFERMENTS)

- The user enters the following information into the model. This information applies to all loans:

<u>Interest Rate:</u>	The interest rate charged to the borrower.
<u>Discount Rate:</u>	The time value of money which may reflect the opportunity cost to a borrower or the long term inflation rate.
<u>Repayment (Years):</u>	The length of the borrower's repayment period in years.
<u>Grace Period (Years):</u>	The length of the borrower's grace period in years.

- The user enters the following information for each of five loans:

<u>Loan Amount:</u>	The principal value of the loan.
<u>Origination Fee Rate:</u>	The percentage of the loan amount charged to the borrower as an origination fee.
<u>Insurance Premium Rate:</u>	The percentage of the loan amount charged to the borrower as an insurance premium, for insurance against default, death, disability or bankruptcy.
<u>In-School (Years):</u>	The length of time, in years, that the borrower will be in school and not responsible for principal or interest payments.

- The model calculates and displays the following information:

<u>Monthly Payment:</u>	The total monthly payment, to begin after the end of the grace period, assuming that all loans are consolidated.
<u>Maximum Years In School:</u>	The maximum number of years in school for all of the loans (used in later calculations).
<u>Monthly Discount Factors:</u>	These figures are based on the discount rate and used in later calculations.
<u>Allocated Monthly Payment:</u>	The portion of total repayment amount that can be allocated to this loan.
<u>Total Payments:</u>	The total of all payments of principal and interest for the length of the repayment period.
<u>Total Interest:</u>	The total interest payments made.
<u>Loan Amount:</u>	The principal value of the loan.
<u>Origination Fee:</u>	The amount of the origination fee.
<u>Insurance Premium:</u>	The amount of the insurance premiums charged to the borrower.
<u>Disbursed Amount:</u>	The amount disbursed to the borrower.

The model presents two scenarios:

- The first scenario assumes that all disbursed funds are used to pay educational expenses after 30 days. Therefore, the borrower is able to invest the funds for only one month.
- The second scenario assumes that all disbursed funds are used to pay educational expenses in 9 equal monthly installments. Therefore, the borrower can obtain a return on the funds during that period.

30-Day Investment:

The amount of return on the disbursed amount, assuming the borrower invests for 30 days at the discount rate (the return is discounted back to the time the loan is made).

Discounted Value Payments:

The value of the monthly payments, discounted to the time of the loan.

Net Present Value at Time of Loan:

30-Day Investment + Discounted Value of Payments: theoretical value of the loan to the borrower at the time the loan is made.

Discounted to Time of First Loan:

The Net Present Value of each loan, discounted to the time the first loan was made (calculated in order to compare all loans on an equal time basis).

9-Month Investments:

The amount of return on the disbursed amount, assuming the borrower invests the funds at the discount rate and applies them to expenses in 9 equal monthly payments (the return is discounted back to the time the loan is made).

Net Present Value at Time of Loan:

9-Month Investment + Discounted Value of Payments: theoretical value of the loan to the borrower at the time the loan is made.

Discounted to Time of First Loan:

The Net Present Value of each loan, discounted to the time the first loan was made (calculated in order to compare all loans on an equal time basis).

METHOD OF CALCULATION - MULTIPLE LOANS MODEL

Monthly Payment*
$$(\text{Total of Loan Amounts}) \times \frac{i(1+i)^n}{(1+i)^n - 1}$$

Where i = Interest Rate/1,200
 = Interest rate per month
 n = Repayment Period x 12
 Number of months of repayment

Maximum Years In-School Maximum value of In-School years for the five loans

Monthly Discount Factors: (Discount Rate/1,200); and
 (Discount Rate/1,200) + 1

For each of loans 1 through 5:

Allocated Monthly Payment:
$$\frac{\text{Loan Amount} \times \text{Monthly Payment}}{\text{Sum of Loan Amounts for loans 1 through 5}}$$

Total Payments: (Allocated Monthly Payment) x (Repayment Period) x 12

Total Interest: (Total Payments) - (Loan Amount)

Origination Fee: (Origination Fee (%) / 100) x (Loan Amount)

Insurance Premium: (Insurance Premium (%) / 100) x (Loan Amount) x (In-School Years)

Disbursed Amount: (Loan Amount) - (Origination Fee) - (Insurance Premium)

30-Day Investment:*
$$\frac{(\text{Disbursed Amount}) \times (\text{Discount Rate} / 1,200)}{(\text{Discount Rate} / 1,200) + 1}$$

* Source: Morris, William T., Engineering Economic Analysis. Reston, VA: Reston Publishing Company, Inc., 1976.

Discounted Value
of Payments:*

$$\frac{(\text{Allocated Monthly Payment}) \times ((1+i)^{n_1} - 1)}{i(1+i)^{n_1}} \times \frac{1}{(1+i)^{n_2}} =$$

Where i = Discount Rate/1,200
 = Discount rate per month
 n_1 = (Repayment Period) x 12
 = Months in repayment
 n_2 = (In School Years + Grace Period) x 12
 = Months in school and Grace Period

Net Present Value
at Time of Loan:

(30-Day Investment) + (Discounted Value
of Payments)

Discounted to Time
of First Loan:*

$$\frac{(\text{Net Present Value at Time of Loan})}{(1+i)^n}$$

Where i = Discount Rate/1,200
 n = (Maximum Years in School - In-School Years) x 12
 = Number of months between this loan and the first loan made

9-Month
Investments:*

$$(i) \times \frac{(\text{Disbursed Amount}) \times \left(\frac{9}{(1+i)} + \frac{8}{(1+i)^2} + \frac{7}{(1+i)^3} + \frac{6}{(1+i)^4} + \frac{5}{(1+i)^5} + \frac{4}{(1+i)^6} + \frac{3}{(1+i)^7} + \frac{2}{(1+i)^8} + \frac{1}{(1+i)^9} \right)}{1}$$

Where i = Discount Rate / 1,200

Net Present Value
at Time of Loan:

(9-Month Investments) + (Discounted Value
of Payments)

* Source:

Morris, William T., Engineering Economic Analysis. Reston, VA: Reston Publishing Company, Inc., 1976.

BORROWER COST MODEL DESCRIPTIONS

MODEL II: MULTIPLE LOANS MODEL
(WITH DEFERMENT)

- The user enters the following information into the model. This information applies to all loans:

<u>Interest Rate:</u>	The interest rate charged to the borrower.
<u>Discount Rate:</u>	The time value of money which may reflect the opportunity cost to a borrower or the long term inflation rate.
<u>Repayment (Years):</u>	The length of the borrower's repayment period in years.
<u>Grace Period (Years):</u>	The length of the borrower's grace period in years.
<u>Year Deferment Granted During Repayment:</u>	The number of years of repayment before the deferment was granted.
<u>Deferment Length (Years):</u>	The length of the deferment period in years.
<u>Post-Deferment Grace Period (Years):</u>	The length of the post-deferment grace period, in years.

- The user enters the following information for each of five loans:

<u>Loan Amount:</u>	The principal value of the loan.
<u>Origination Fee Rate:</u>	The percentage of the loan amount charged to the borrower as an origination fee.

Insurance Premium Rate:

The percentage of the loan amount charged to the borrower as an insurance premium, for insurance against default, death, disability or bankruptcy.

In-School (Years):

The length of time, in years, that the borrower will be in school and not responsible for principal or interest payments.

- The model calculates and displays the following information:

Monthly Payment:

The total monthly payment, to begin after the end of the grace period, assuming that all loans are consolidated.

Maximum Years In School:

The maximum number of years in school for all of the loans (used in later calculations).

Monthly Discount Factors:

These figures are based on the discount rate and used in later calculations.

Allocated Monthly Payment:

The portion of total repayment amount that can be allocated to this loan.

Total Payments:

The total of all payments of principal and interest for the length of the repayment period.

Total Interest:

The total interest payments made.

Loan Amount:

The principal value of the loan.

Origination Fee:

The amount of the origination fee.

Insurance Premium:

The amount of the insurance premium charged to the borrower.

Disbursed Amount:

The amount disbursed to the borrower.

The model presents two scenarios:

- The first scenario assumes that all disbursed funds are used to pay educational expenses after 30 days. Therefore, the borrower is able to invest the funds for only one month.
- The second scenario assumes that all disbursed funds are used to pay educational expenses in 9 equal monthly installments. Therefore, the borrower can obtain a return on the funds during that period.

30-Day Investment:

The amount of return on the disbursed amount, assuming the borrower invests for 30 days at the discount rate (the return is discounted back to the time the loan is made).

Discounted Value Payments:

The value of the monthly payments, discounted to the time of the loan.

Net Present Value at Time of Loan:

30-Day Investment + Discounted Value of Payments: theoretical value of the loan to the borrower at the time the loan is made.

Discounted to Time of First Loan:

The Net Present Value of each loan, discounted to the time the first loan was made (calculated in order to compare all loans on an equal time basis).

9-Month Investments:

The amount of return on the disbursed amount, assuming the borrower invests the funds at the discount rate and applies them to expenses in 9 equal monthly payments (the return is discounted back to the time the loan is made).

Net Present Value at Time of Loan:

9-Month Investment + Discounted Value of Payments: theoretical value of the loan to the borrower at the time the loan is made.

METHOD OF CALCULATION - MULTIPLE LOANS MODEL
(WITH DEFERMENT)

$$\text{Monthly Payment}^* \quad (\text{Total of Loan Amounts}) \times \frac{i(1+i)^n}{(1+i)^n - 1}$$

Where i = Interest Rate/1,200
 = Interest rate per month
 n = Repayment Period x 12
 = Number of months of repayment

Maximum Years
In-School

Maximum value of In-School years for the
 five loans

Monthly Discount
Factors:

(Discount Rate/1,200); and
 (Discount Rate/1,200) + 1

For each of loans 1 through 5:

Allocated Monthly
Payment:

$\frac{\text{Loan Amount} \times \text{Monthly Payment}}{\text{Sum of Loan Amounts for loans 1 through 5}}$

Total Payments:

(Allocated Monthly Payment) x (Repayment Period) x 12

Total Interest:

(Total Payments) - (Loan Amount)

Origination Fee:

(Origination Fee (%) / 100) x (Loan Amount)

Insurance Premium:

(Insurance Premium (%) / 100) x (Loan Amount) x (In-School Years)

Disbursed Amount:

(Loan Amount) - (Origination Fee) - (Insurance Premium)

* Source:
 Morris, William T., Engineering Economic Analysis. Reston,
 VA: Reston Publishing Company, Inc., 1976.

$$\text{30-Day Investment:}^* \quad \frac{(\text{Disbursed Amount}) \times (\text{Discount Rate}/1,200)}{(\text{Discount Rate}/1,200) + 1}$$

$$\begin{aligned} \text{Discounted Value} & \quad (\text{Allocated Monthly Payment}) \times \\ \text{of Payments:}^* & \quad \frac{(1+i)^{n_1} - 1}{i(1+i)^{n_1}} \times \frac{1}{(1+i)^{n_2}} + \\ & \quad (\text{Allocated Monthly Payment}) \times \\ & \quad \frac{(1+i)^{n_3} - 1}{i(1+i)^{n_3}} \times \frac{1}{(1+i)^{n_4}} \end{aligned}$$

Where i = Discount Rate/1,200
 = Discount rate per month
 n_1 = (Year Deferment Granted
 During Repayment) $\times 12$
 = Months in first repayment
 period
 n_2 = (In School Years + Grace Period)
 $\times 12$
 = Months in school and grace
 period
 n_3 = (Repayment Years - Year Deferment
 Granted During Repayment)
 $\times 12$
 = Months in second repayment
 period
 n_4 = (In-School Years + Grace Period
 + Year Deferment Granted
 During Repayment + Deferment
 Length + Post-Deferment Grace
 Period) $\times 12$
 = Months between time of loan and
 start of second repayment period

$$\text{Net Present Value} \quad (30\text{-Day Investment}) + (\text{Discounted Value of} \\ \text{at Time of Loan:} \quad \text{Payments})$$

$$\text{Discounted to Time} \quad \frac{(\text{Net Present Value at Time of Loan})}{(1+i)^n} \\ \text{of First Loan:}^*$$

Where i = Discount Rate/1,200
 n = (Maximum Years in School - In
 School Years) $\times 12$
 = Number of months between this
 loan and the first loan made

* Source:
 Morris, William T., Engineering Economic Analysis. Reston, VA:
 Reston Publishing Company, Inc., 1976.

9-Month Investment: *

$$(i) \times \frac{(\text{Disbursed Amount})}{9} \times \left(\frac{9}{(1+i)} + \frac{8}{(1+i)^2} + \frac{7}{(1+i)^3} + \frac{6}{(1+i)^4} + \frac{5}{(1+i)^5} + \frac{4}{(1+i)^6} + \frac{3}{(1+i)^7} + \frac{2}{(1+i)^8} + \frac{1}{(1+i)^9} \right)$$

Where i = Discount Rate/1,200

Net Present Value
at Time of Loan:

(9-Month Investments) + (Discounted Value
of Payments)

* Source:
Morris, William T., Engineering Economic Analysis. Reston, VA:
Reston Publishing Company, Inc., 1976.

BORROWER COST MODEL DESCRIPTIONS

MODEL III: PLUS LOAN MODEL

- The user enters the following information into the model:

<u>Loan Amount:</u>	The principal value of the loan.
<u>Interest Rate:</u>	The interest rate charged to the borrower
<u>Discount Rate:</u>	The time value of money which may reflect the opportunity cost to a borrower or the long term inflation rate.
<u>Insurance Premium Rate:</u>	The percentage of the loan amount charged to the borrower as an insurance premium.

- The model calculates and displays the following information: (assumed 7 years repayment period):

<u>Monthly Payment:</u>	The total monthly payment for the borrower.
<u>Payment Schedule:</u>	The schedule of payments for 84 months, showing the principal balance, interest paid, and principal paid for each month.
<u>Total Payments:</u>	The total of all payments of principal and interest for the length of the repayment period.
<u>Total Interest:</u>	The total of interest payments made.
<u>Loan Amount:</u>	The principal value of the loan.
<u>Insurance Premium:</u>	The amount of the insurance premium (calculated as a percentage of the declining principal balance).
<u>Disbursed Amount:</u>	The amount disbursed to the borrower (Loan Amount - Insurance Premium).

30-Day Invest-
ment:

The amount of return on the disbursed amount, assuming the borrower invests for 30 days at the discount rate (the return is discounted back to the time of the loan).

Discounted Value
of Payments:

The value of the monthly payments, discounted to the time of the loan.

Net Present Value
at Time of Loan:

30-Day Investment + Discounted Value of Payments: theoretical value of the loan to the borrower at the time the loan is made.

METHOD OF CALCULATION -- PLUS LOAN MODEL

Monthly Payment*:
$$(\text{Loan Amount}) \times \frac{i(1+i)^n}{(1+i)^n - 1}$$

Where i = Interest Rate/1,200
 = Interest rate per month
 n = 84
 = Months in 7-year repayment period

Payment Schedule:

Principal Balance (Month 1): Loan Amount

Principal Balance (Months 2-84): (Previous Principal Balance) - (Monthly Payment) + (Previous Principal Balance $\times i$)

Where i = Interest Rate/1,200

Principal Paid: (Monthly Payment) - (Interest Paid)

Total Payments: (Monthly Payment) $\times$ 84

Total Interest: (Total Payments) - (Loan Amount)

Insurance Premium: (Insurance Premium (%) / 1,200) $\times$ (Sum of Principal Balance for Months 1-84)

Disbursed Amount: (Loan Amount) - (Insurance Premium)

30-Day Investment:*
$$\frac{(\text{Disbursed Amount}) \times (\text{Discount Rate}/1,200)}{(\text{Discount Rate}/1,200) + 1}$$

* Source:
 Morris, William T., Engineering Economic Analysis. Reston,
 VA: Reston Publishing Company, Inc., 1976.

Discounted Value
of Payments:

$$(\text{Monthly Payment}) \times \frac{(1 + i)^{84} - 1}{i(1 + i)^{84}}$$

Where $i = \text{Discount Rate}/1,200$

Net Present Value
at Time of Loan:

(30-Day Investment) + (Discounted Value
of Payments)

* Source:
Morris, William T., Engineering Economic Analysis. Reston,
VA: Reston Publishing Company, Inc., 1976.